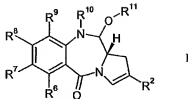


CLAIMS

1. A compound of formula I:



5 and salts, solvates and chemically protected forms thereof,  
wherein:  
R<sup>6</sup> and R<sup>9</sup> are independently selected from H, R, OH, OR, SH, SR, NH<sub>2</sub>,  
NHR, NRR', nitro, Me<sub>3</sub>Sn and halo;  
R and R' are independently selected from optionally substituted  
10 C<sub>1-12</sub> alkyl, C<sub>3-20</sub> heterocyclyl and C<sub>5-20</sub> aryl groups;  
R<sup>7</sup> and R<sup>8</sup> are independently selected from H, R, OH, OR, SH, SR, NH<sub>2</sub>,  
NHR, NRR', nitro, Me<sub>3</sub>Sn and halo,  
or the compound is a dimer with each monomer being of formula (I),  
where the R<sup>7</sup> groups or R<sup>8</sup> groups of each monomers form together a  
15 dimer bridge having the formula -X-R"-X- linking the monomers,  
where R" is a C<sub>3-12</sub> alkylene group, which chain may be interrupted  
by one or more heteroatoms and/or aromatic rings, and each X is  
independently selected from O, S, or NH;  
or any pair of adjacent groups from R<sup>6</sup> to R<sup>9</sup> together form a group  
20 -O-(CH<sub>2</sub>)<sub>p</sub>-O-, where p is 1 or 2;  
R<sup>10</sup> is a carbamate-based nitrogen protecting group;  
R<sup>11</sup> is an oxygen protecting group; and  
R<sup>2</sup> is a labile leaving group.

25 2. A compound according to claim 1, wherein R<sup>9</sup> is H.

3. A compound according to either claim 1 or claim 2, wherein R<sup>6</sup>  
is selected from H, OH, OR, SH, NH<sub>2</sub>, nitro and halo.

30 4. A compound according to any one of the preceding claims,  
wherein R<sup>10</sup> is Troc.

5. A compound according to any one of the preceding claims,  
wherein R<sup>11</sup> is a silyl oxygen protecting group or THP.

6. A compound according to any one of the preceding claims,  
5 wherein R<sup>2</sup> is triflate.

7. A compound according to any one of the preceding claims,  
wherein R<sup>7</sup> and R<sup>8</sup> are independently selected from H, OH, OR, SH,  
NH<sub>2</sub>, NHR, NRR' and halo.

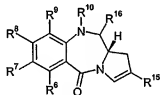
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8. A compound according to any one of claims 1 to 6, wherein the  
compound is a dimer with each monomer being of formula (I), where  
the R<sup>7</sup> groups or R<sup>8</sup> groups of each monomer form together a dimer  
bridge having the formula -O-(CH<sub>2</sub>)<sub>n</sub>-O- linking the monomers, where n  
15 is from 3 to 12.

9. A compound according to claim 8, wherein n is from 3 to 7.

10. A compound according to either claim 8 or claim 9, wherein  
20 the substituents R<sup>8</sup> join to form the dimer bridge.

11. A compound of formula III:



III

and salts, solvates, chemically protected forms and prodrugs  
25 thereof, wherein:

R<sup>6</sup> and R<sup>9</sup> are independently selected from H, R, OH, OR, SH, SR, NH<sub>2</sub>,  
NHR, NRR', nitro, Me<sub>3</sub>Sn and halo;  
R and R' are independently selected from optionally substituted  
C<sub>1-12</sub> alkyl, C<sub>3-20</sub> heterocyclyl and C<sub>5-20</sub> aryl groups;  
30 R<sup>7</sup> and R<sup>8</sup> are independently selected from H, R, OH, OR, SH, SR, NH<sub>2</sub>,  
NHR, NRR', nitro, Me<sub>3</sub>Sn and halo,

or the compound is a dimer with each monomer being of formula (I), where the R<sup>7</sup> groups or R<sup>8</sup> groups of each monomers form together a dimer bridge having the formula -X-R"-X- linking the monomers, where R" is a C<sub>3-12</sub> alkylene group, which chain may be interrupted by one or more heteroatoms and/or aromatic rings, and each X is independently selected from O, S, or NH; or any pair of adjacent groups from R<sup>6</sup> to R<sup>9</sup> together form a group -O-(CH<sub>2</sub>)<sub>p</sub>-O-, where p is 1 or 2; R<sup>10</sup> is a carbamate-based nitrogen protecting group; and R<sup>16</sup> is either O-R<sup>11</sup>, wherein R<sup>11</sup> is an oxygen protecting group, or O-R<sup>11</sup> is OH; or R<sup>10</sup> and R<sup>16</sup> together form a double bond between N10 and C11; R<sup>18</sup> is R; and wherein,

when R<sup>7</sup> and R<sup>8</sup> are OMe, R<sup>6</sup> and R<sup>9</sup> are H, and where R<sup>10</sup> and R<sup>16</sup> together form a double bond between N10 and C11, R<sup>18</sup> is not phenyl, 4-methylphenyl, 2-methylphenyl, 4-ethylphenyl, 2,6-dimethylphenyl, 4-methoxyphenyl, 4-tert-butylphenyl, 4-fluorophenyl, 4-chlorophenyl, 2-naphthyl or 2-thiophenyl.

20

12. A compound according to claim 11, wherein when R<sup>7</sup> and R<sup>8</sup> are OMe, R<sup>6</sup> and R<sup>9</sup> are H, and R<sup>18</sup> is R, R is selected from the group 3-methoxyphenyl, 4-biphenyl, 4-phenoxyphenyl, 3,4-methylenedioxyphenyl, trans-2-(4-methylphenyl)vinyl, trans-propenyl, 4-dimethylaminophenyl, 4-methylthiophenyl, 4-vinylphenyl, 3,4-dichlorophenyl, 4-trifluoromethylphenyl, 4-isopropylphenyl, 4-cyanophenyl, 3-pyridinyl, 4-pyridinyl, 4-formylphenyl, 4-carboxyphenyl, 2,6-dimethoxyphenyl, 4-acetanilide, 4-aminophenyl, 1-naphthyl, 5-indole, 3-aminophenyl, 2,6-difluorophenyl, 1-pyrenyl, 4-hydroxyphenyl and trans-hexenyl.

30

13. A compound according to either claim 11 or claim 12, wherein when R<sup>7</sup> and R<sup>8</sup> are OMe, R<sup>6</sup> and R<sup>9</sup> are H, and R<sup>18</sup> is R, R is selected from a C<sub>3-20</sub> heterocyclyl group having a nitrogen ring atom, C<sub>5-20</sub> aryl group having a nitrogen-containing substituent, or a C<sub>5-20</sub>

35

heteroaryl group having a nitrogen ring atom or a nitrogen-containing substituent.

14. A compound according to claim 11, wherein the compound is a dimer with each monomer being of formula (I), where the R<sup>7</sup> groups or R<sup>8</sup> groups of each monomer form together a dimer bridge having the formula -O-(CH<sub>2</sub>)<sub>n</sub>-O- linking the monomers, where n is from 3 to 12.

15. A compound according to claim 14, wherein n is from 3 to 7.

16. A compound according to either claim 14 or claim 15, wherein the substituents R<sup>8</sup> join to form the dimer bridge.

17. A compound according to any one of claims 14 to 16, wherein R<sup>15</sup> is selected from:

- (i) optionally substituted C<sub>3-20</sub> aryl groups;
- (ii) substituted C<sub>2</sub> alkyl groups; and
- (iii) optionally substituted C<sub>3-7</sub> alkyl groups.

20

18. A compound according to any one of claims 11 to 17, wherein R<sup>10</sup> and R<sup>16</sup> together form a double bond between N10 and C11.

19. A compound according to any one of claims 11 to 18, wherein R<sup>9</sup> is H.

20. A compound according to any one of claims 11 to 19, wherein R<sup>7</sup> and R<sup>8</sup> are independently selected from H, OH, OR, SH, NH<sub>2</sub>, NHR, NRR' and halo.

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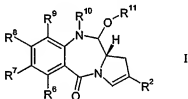
21. A compound according to any one of claims 11 to 20 for use in a method of therapy.

22. A pharmaceutical composition containing a compound of any one of claims 11 to 20, and a pharmaceutically acceptable carrier or diluent.

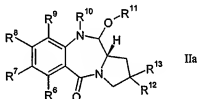
5 23. Use of a compound according to any one of claims 11 to 20 in the manufacture of a medicament for treating a proliferative disease.

24. A method of treatment of a proliferative disease, comprising  
10 administering to a subject in need of treatment a therapeutically-effective amount of a compound of any one of claims 11 to 20.

25. A method of synthesising a compound of formula I:



15 from a compound of formula IIa:



wherein:

R<sup>6</sup> and R<sup>9</sup> are independently selected from H, R, OH, OR, SH, SR, NH<sub>2</sub>,  
NHR, NRR', nitro, Me<sub>3</sub>Sn and halo;

20 R and R' are independently selected from optionally substituted C<sub>1-12</sub> alkyl, C<sub>3-20</sub> heterocyclyl and C<sub>6-20</sub> aryl groups;

R<sup>7</sup> and R<sup>8</sup> are independently selected from H, R, OH, OR, SH, SR, NH<sub>2</sub>,  
NHR, NRR', nitro, Me<sub>3</sub>Sn and halo,

or the compound is a dimer with each monomer being of formula (I),

25 where the R<sup>7</sup> groups or R<sup>8</sup> groups of each monomers form together a dimer bridge having the formula -X-R"-X- linking the monomers,  
where R" is a C<sub>3-12</sub> alkylene group, which chain may be interrupted

by one or more heteroatoms and/or aromatic rings, and each X is independently selected from O, S, or NH;  
or any pair of adjacent groups from R<sup>6</sup> to R<sup>9</sup> together form a group - O-(CH<sub>2</sub>)<sub>p</sub>-O-, where p is 1 or 2;

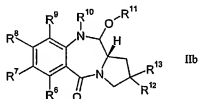
5 R<sup>10</sup> is a carbamate-based nitrogen protecting group;

R<sup>11</sup> is an oxygen protecting group;

R<sup>2</sup> is a labile leaving group; and

R<sup>12</sup> and R<sup>13</sup> together form =O.

10 26. A method according to claim 25, wherein the compound of formula IIA is synthesised from a compound of formula IIB:



IIB

wherein said compound of formula IIB has R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup> and R<sup>11</sup> defined according to claim 25, and for said compound of formula IIB

15 R<sup>12</sup> is O-R<sup>14</sup>, and R<sup>13</sup> is H; and

R<sup>14</sup> is an oxygen protecting group orthogonal to R<sup>11</sup>.

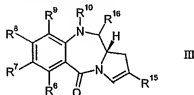
27. A method according to claim 26, wherein the compound of formula IIA is synthesised using an oxidation reaction performed under Swern conditions, or a method involving the TPAP or the Dess Martin reagents.

28. A method according to any one of claims 25 to 27, wherein when R<sup>2</sup> in the compound of formula I is -OSO<sub>2</sub>CH<sub>3</sub>, -OSO<sub>2</sub>(C<sub>n</sub>F<sub>2n+1</sub>) where  
25 n = 0, 1 or 4, or -OSO<sub>2</sub>R<sup>3</sup> where R<sup>3</sup> is an optionally substituted phenyl group, then said compound of formula I is synthesised by using a treatment step with the appropriate R<sup>2</sup> anhydride.

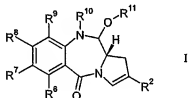
29. A method according to any one of claims 25 to 27, wherein  
30 when R<sup>2</sup> in the compound of formula I is -I or -Br, then said compound of formula I is synthesised by using a reaction step involving hydrazine and iodine or bromine.

30. A method according to any one of claims 25 to 27, wherein when R<sup>2</sup> in the compound of formula I is -Cl, then said compound of formula I is synthesised by using a reaction step involving phosphorous oxychloride.

31. A method of synthesising a compound of formula III:



from a compound of formula I:



wherein

R<sup>6</sup> and R<sup>9</sup> are independently selected from H, R, OH, OR, SH, SR, NH<sub>2</sub>, NHR, NRR', nitro, Me<sub>3</sub>Sn and halo;

R and R' are independently selected from optionally substituted C<sub>1-12</sub> alkyl, C<sub>3-20</sub> heterocyclyl and C<sub>3-20</sub> aryl groups;

R<sup>7</sup> and R<sup>8</sup> are independently selected from H, R, OH, OR, SH, SR, NH<sub>2</sub>, NHR, NRR', nitro, Me<sub>3</sub>Sn and halo,

or the compound is a dimer with each monomer being of formula (I),

where the R<sup>7</sup> groups or R<sup>8</sup> groups of each monomers form together a dimer bridge having the formula -X-R''-X- linking the monomers,

where R'' is a C<sub>3-12</sub> alkylene group, which chain may be interrupted by one or more heteroatoms and/or aromatic rings, and each X is independently selected from O, S, or NH;

or any pair of adjacent groups from R<sup>6</sup> to R<sup>9</sup> together form a group

-O-(CH<sub>2</sub>)<sub>p</sub>-O-, where p is 1 or 2;

R<sup>10</sup> is a carbamate-based nitrogen protecting group;

R<sup>2</sup> is a labile leaving group;

R<sup>16</sup> is either O-R<sup>11</sup>, where R<sup>11</sup> is an oxygen protecting group, or OH, or R<sup>10</sup> and R<sup>16</sup> together form a double bond between N10 and C11; and R<sup>15</sup> is R.

- 5      32. A method according to claim 31, wherein the synthesis of said compound of formula III uses a palladium catalysed coupling step.
33. A method according to claim 32, wherein the palladium catalyst is Pd(PPh<sub>3</sub>)<sub>4</sub>, Pd(OCOCH<sub>3</sub>)<sub>2</sub>, PdCl<sub>2</sub> or Pd(dba)<sub>3</sub>.
- 10     34. A method according to either claim 32 or claim 33, wherein the coupling reaction is performed under microwave conditions.
35. A method according to any one of claims 32 to 34, wherein the
- 15     palladium catalyst is solid supported.